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The present study examined how people with BPD traits respond to social rejection, using a reliving task as the manipulation of social rejection. In addition, this study examined how rejection sensitivity and BPD traits differentially influence responses to social rejection. One hundred forty-seven undergraduate participants completed questionnaires that assessed BPD traits and mood. In addition, all participants wrote about a previous social rejection or acceptance experience. Results showed the all participants, regardless of level of BPD traits, felt the recalled rejection experience was very negative. In addition, results demonstrated that compared to participants lower in BPD traits, participants higher in BPD traits reported significantly higher anger-hostility, depression-dejection, and overall negative mood after reliving a rejection experience than an acceptance experience. This suggests that the reliving task as a type of social manipulation can influence the ability to detect differences between participants higher in BPD traits and participants lower in BPD traits. Finally, results demonstrated that compared to participants lower in BPD traits, participants higher in BPD traits reported significantly higher tension-anxiety, anger-hostility, depression-dejection, and overall negative mood after reliving a rejection experience than an acceptance experience after partialling out the variance explained by rejection sensitivity. These results suggest that there are characteristics over and above rejection sensitivity that are unique to BPD that contribute to the responses to social rejection.

REPSONSES TO SOCIAL REJECTION: THE ROLE OF BORDERLINE PERSONALITY DISORDER TRAITS

by

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APPROVAL PAGE

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CHAPTER I

INTRODUCTION

The present study utilized an experimental manipulation of social rejection to examine whether participants higher in Borderline Personality Disorder (BPD) traits would report greater negative mood and greater perceived severity of rejection following the manipulation compared to participants lower in BPD traits. This dissertation introduction first describes why people are affected by social rejection experiences and the responses that they have to these experiences. This introduction then explores the few studies that have examined how people with BPD or BPD traits respond to social rejection. This introduction then explores the relation between BPD and rejection sensitivity. Finally, this introduction explores the limitations of the extant literature and discusses the present study that addressed these limitations.

Responses to Social Rejection

It is likely that everyone has experienced social rejection at some point in his or her life. It is also likely that these experiences had a strong negative impact. Baumeister and Leary (1995) proposed that these experiences of social rejection negatively affect most people because there is a fundamental human motivation to form and maintain close interpersonal relationships. They proposed that a great deal of human behavior, emotion, and thought is caused by this fundamental interpersonal motivation. Baumeister et al.

(1995) asserted that the need to belong was a fundamental human motivation because it has affective consequences, directs cognitive processing, leads to ill effects when thwarted, elicits goal-oriented behavior designed to satisfy it, affects a broad variety of behaviors, and has implications that go beyond immediate psychological functioning.

Since the publication of Baumeister and Leary's influential paper, research on the need to belong has expanded rapidly. The empirical literature has found that when the fundamental need of belonging is not met, people often respond in negative ways. For example, research has shown people who experience social rejection are more likely to experience decreased intellectual performance, decreased self-regulation that result in risky and unhealthy behaviors, and increased antisocial and aggressive behaviors (e.g., Baumeister, DeWall, Ciarocco, & Twenge, 2005; Bourgeois & Leary, 2001; Twenge, Catanese, & Baumeister, 2002; Wesselmann, Butler, Williams, & Pickett, 2010). While most people do not like being rejected and respond in negative ways when they do experience rejection, there are some people who may be more sensitive to social rejection experiences than others. One population that may be particularly sensitive to social rejection are those with Borderline Personality Disorder (BPD).

Borderline Personality Disorder and Responses to Social Rejection

Those with BPD are of particular interest given that fear of abandonment is one of the defining features of BPD. According to the DSM-IV-TR (2000, p. 686), the diagnostic criteria for personality disorders are listed in order of importance based on existent empirical data. The first criterion in the DSM-5 states that those with BPD will

make “frantic efforts to avoid real or imagined abandonment” (American Psychiatric Association, 2013). The DSM-5 goes on to explain that the perception of rejection in those with BPD can lead to changes in self-image, affect, cognition, and behavior (American Psychiatric Association, 2013). These frantic efforts to avoid abandonment can include destructive behaviors such as self-harm or suicidal behaviors. In an attempt to understand why people with BPD have such strong reactions to signs of rejection and/or abandonment, researchers have proposed several theories. The theory that has received the most attention stems from Bowlby’s (1969) attachment theory. Gunderson (1996) conceptualized BPD as a disorder of insecure attachment and an intolerance of being alone.

Although an interpersonal instability has been thought to be at the core of BPD for decades, only recently have researchers begun to empirically examine the attachment styles found in individual with BPD or BPD traits. In 2004, Agrawal, Gunderson, Holmes, and Lyons-Ruth reviewed the limited number of studies that have examined attachment styles in BPD. The studies that Agrawal et al. (2004) reviewed used various labels for insecure attachment (i.e., preoccupied, ambivalent, fearful) but for the purposes of the review, the authors grouped the attachments styles into secure and insecure. The authors found that of the 13 studies that examined attachment styles in BPD, between 64 and 93% of those with BPD or BPD traits had insecure forms of attachment.

The present study is not furthering the investigation of attachment insecurity in those with BPD or BPD traits, but is rather focusing on the responses that people with

BPD or BPD traits have to signs of rejection and/or abandonment. Clinical experience and theory suggests that when those with BPD or BPD traits experience rejection, they experience intense negative affective states and engage in destructive behaviors. However, few studies have empirically examined how people with BPD or BPD traits respond to social rejection. Those studies that have been conducted have primarily used the Cyberball manipulation to examine whether those with BPD or BPD traits respond differently to social rejection compared to controls.

For example, Renneberg, Herm, Hahn, Staebler, Lammers, and Roepke (2011) conducted a study that examined how BPD influences perceptions of participation in a Cyberball game and emotional reactions to social inclusion and exclusion. The authors examined the responses to the Cyberball manipulation of those diagnosed with BPD that were in an inpatient setting compared to healthy controls. The authors used a 14-item self-report inventory to assess for mood they had developed. The scale consisted of items such as hurt, despair, sadness, fear, and anger. The self-report inventory asked participants to indicate to what extent they were feeling each of the 14 emotions using a seven-point likert scale (1 = not at all to 7 = very strongly). The authors conducted a factor analysis of the items that resulted in two factors: negative emotions and positive emotions. The authors examined whether BPD patients reported significantly greater overall negative emotions compared to controls in the exclusion condition of the Cyberball manipulation. In addition, the authors examined whether BPD patients reported significantly greater anger compared to controls in the exclusion condition of the

Cyberball manipulation. The study found no difference between BPD patients and controls on ratings of overall negative affect and anger in the exclusion condition of the Cyberball manipulation (Renneberg et al., 2011). BPD patients and controls both reported higher negative emotions in response to the exclusion condition of the Cyberball manipulation.

Lawrence, Chanen, and Allen (2011) conducted a similar study that examined how social rejection, using the Cyberball manipulation, influenced mood in participants diagnosed with BPD. The authors asked participants to rate the extent to which they were feeling thirteen emotions and other states that they identified as being commonly associated with BPD (anger, disgust, fear, joy, sadness, surprise, rejection, shame, emptiness, suicidality, dissociation, suspicion, and guilt) using a visual analogue scale from not at all to extremely. The study found no differences between BPD patients and controls in any of the mood states in the exclusion condition of the Cyberball manipulation (Lawrence et al., 2011). BPD patients and controls both reported higher negative emotions in response to the exclusion condition of the Cyberball manipulation.

Dixon-Gordon, Chapman, Lovasz, and Walters (2013) also examined the responses to the Cyberball manipulation of those diagnosed with BPD compared to a non-BPD group. The authors used the negative affect (NA) subscale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) to assess for emotional reactions to the Cyberball task. Participants were asked to rate the extent to which they felt 10 emotions using a five-point likert scale (1 = very slightly or not at all to 5 = extremely) as a result of the Cyberball task. The study found no difference between

the BPD group and the non-BPD group on ratings of negative mood on the PANAS in the exclusion condition of the Cyberball manipulation (Dixon-Gordon et al., 2013). Those diagnosed with BPD and the non-BPD group both reported higher negative mood on the PANAS in response to the exclusion condition of the Cyberball manipulation.

The results from these studies are puzzling, as it seems apparent that people with BPD should respond very negatively to rejection, and more negatively than healthy controls. This prediction is based on our clinical understanding of BPD as evidenced by the importance of "frantic efforts to avoid real or imagined abandonment" in the DSM-5, and the theoretical rational founded in attachment theory for why those with BPD or BPD traits would be particularly sensitive to social rejection. Some researchers have proposed some possible explanations for the findings that those with BPD did not respond differently to social rejection compared to controls. First, Lawrence et al. (2011) stated that certain social rejection manipulations might be a relatively benign experience for BPD participants. The authors emphasized the need to use a more salient manipulation to simulate social rejection in order to elicit a more extreme and long-lasting emotional response among those with BPD traits (Lawrence et al., 2011). There has been some recent research to support the idea that some social rejection manipulations are considered to be stronger than others. Bernstein and Claypool (2012) conducted a study that compared two different social rejection manipulations (i.e., "future alone" and Cyberball). The authors found that participants rated social rejection in both the Cyberball and the "future alone" manipulation as more negative compared to the "future belonging" condition (Bernstein & Claypool, 2012). Importantly, the authors found that

participants rated the "future alone" manipulation as significantly more negative than the exclusion condition of the Cyberball manipulation (Bernstein & Claypool, 2012). This was the first study to compare different social rejection manipulations and how that might influence responses to social rejection. This study demonstrates that not all social rejection manipulations are created equal, and some may be perceived as more severe than others.

There has been one study that has used a different social rejection manipulation than the Cyberball manipulation. Tragesser, Lippman, Trull, and Barrett (2008) conducted a study that examined how BPD traits influence emotional responses to a written teasing scenario. The authors used a dimensional model of BPD rather than the categorical model used in the DSM. The authors had undergraduate participants complete the Personality Assessment Inventory-Borderline Features (PAI-BOR) and this was used as the measure of BPD traits. Participants were then asked to imagine that they were in four different social situations that depicted teasing. The authors used the Differential Emotions Scale developed by Izard (1977) to assess for emotional responses to the teasing scenarios. Participants were asked to rate the extent to which they would feel each of 31 emotions using a five-point likert scale (1= not at all to 5 = very much) as a result of each teasing scenario. The authors found that participants higher in BPD traits were more likely to feel both angry and sad when they imagined a written teasing scenario (Tragesser et al., 2008). This study demonstrates that the rejection manipulation that has been used could explain the results from the studies that found no differences in emotional responses to social rejection among participants with BPD compared to

controls. While this study provides initial support for the proposal by Lawrence et al. (2011) that studies need to use more meaningful manipulation to simulate social rejection in order to elicit a more extreme and long-lasting emotional response among those with BPD traits, there are other social rejection paradigms that could prove to be meaningful for those with BPD of BPD traits.

One social rejection manipulation of interest is the reliving task developed by Pickett, Gardner, and Knowles (2004). This reliving task has proven successful in manipulating social rejection in previous studies. While this paper will not fully summarize the results of each study, it will describe the reliving task used and the manipulation check that was used, in order to demonstrate that the reliving task has been found to be an effective social rejection manipulation. Pickett et al. (2004) conducted a study with undergraduate students that examined whether excluded participants would be better at attending to social cues and interpreting them accurately. For the social rejection manipulations, participants were randomly assigned to one of three reliving conditions (exclusion, failure-control, and neutral-control). In the exclusion condition, participants were asked to recall and write about a time when they felt socially excluded. In the failure-control condition, participants were asked to recall and write about a time they experienced academic failure. In the neutral-control condition, participants were asked to write about their walk or drive to campus that day. Participants were asked to rate how positive or negative the relived event was, how good or bad the event made them feel about themselves, and how negative or positive their mood was after reliving the event. The authors found that participants in the rejection and failure-control conditions rated

the event as significantly more negative, that they felt significantly worse about themselves, and had a greater negative mood compared to those that wrote about a neutral-control event (Pickett et al., 2004).

DeWall (2010) conducted a study that examined whether excluded participants were more likely to conform to group consensus. For the social rejection manipulations, the authors asked undergraduate participants to either write about a social exclusion or social acceptance experience or a neutral topic. After the writing task, participants completed the PANAS as a manipulation check. The study found that participants that wrote about a social exclusion experience reported significantly greater negative affect on the PANAS than participants that wrote about a social acceptance experience or a neutral topic.

Finally, a study conducted by Claypool and Bernstein (2014) examined the connection between social rejection and individuation, or the careful consideration of an individual's behavior rather than relying on stereotyping. For the social rejection manipulation, undergraduate participants were randomly assigned to write about a time they felt rejected, accepted, or about a mundane experience from the previous day. When participants completed the writing task, they completed a measure of "fundamental needs" of self-esteem, control, belonging, and meaningful existence, which was used as the manipulation check. In addition, participants were asked to rate the extent to which they felt sad during the event on a five-point likert scale. The authors found that participants that wrote about a rejection experience reported less satisfaction of the "fundamental needs" than participants that wrote about a mundane experience or an

acceptance experience. In addition, participants that wrote about a rejection experience reported greater sadness than participants that wrote about a mundane experience or an acceptance experience. While this is not an exhaustive summary of the studies that have used the reliving task as the social rejection manipulation, the studies described above demonstrate that the reliving task has been successfully used as a social rejection manipulation.

In addition to being successfully used as a social rejection manipulation among undergraduates, the reliving task could prove to be a particularly meaningful social rejection manipulation for those with BPD or BPD traits. Having those with BPD or BPD traits recall a time when they were rejected by someone in their life could result in more extreme responses expected of those with BPD because it reminds them of previous rejection experiences, which "triggers" the fear of abandonment and elicits the negative emotions associated with this rejection experience. Although it would be expected that the reliving task would be a particularly meaningful social rejection manipulation for those with BPD or BPD traits, to date there have been no studies that have used the reliving task as the social rejection manipulation among those with BPD or BPD traits. As outlined above, Bernstein and Claypool (2012) conducted a study that compared two different social rejection manipulations. The authors were interested in whether the severity of the social rejection manipulation could account for differences in the literature regarding emotion- and physical-pain sensitivity. The authors concluded that some social rejection manipulations may be more severe than others and that this could account for

the differences in responses to social rejection. Therefore future studies could benefit from using social rejection manipulations of various levels of severity in order to examine whether this might influence the responses to social rejection.

Another possible explanation for the findings from the studies outlined above that those with BPD or BPD traits did not respond differently to social rejection compared to controls is that there was a ceiling effect for the mood measures because of how negative almost all people find social rejection. However, none of the studies outlined above had a ceiling effect on the mood measured; but both groups found social rejection to be very negative as the mean score on was several points below the maximum score the dependent variables. Another explanation for the findings from the studies outlined above is the measures that were used to assess for mood following social rejection. For example, Renneberg et al. (2011) used a 14-item self-report inventory to assess for mood that they had developed. The scale consisted of items such as hurt, despair, sadness, fear, and anger. As described above, the authors conducted a factor analysis of the items that resulted in two factors: negative emotions and positive emotions. Additionally, to assess for emotional reactions to the exclusion condition of the Cyberball manipulation, Lawrence et al. (2011) had participants complete a measure they developed. Participants were asked rate the extent to which they were feeling thirteen emotions and other states associated with BPD: anger, disgust, fear, joy, sadness, surprise, rejection, shame, emptiness, suicidality, dissociation (spaced-out) suspicion, and guilt. Clinicians and theory have long considered overall negative affect as well as specific types of negative affect a common feature of BPD. In fact, affective instability (e.g., dysphoria, irritability,

or anxiety) and intense anger are two criteria for BPD in the DSM-5 (American Psychiatric Association, 2013). While it would be expected that those with BPD or BPD traits would experience an increase in overall negative affect following social rejection, it is also expected that they would experience an increase in certain types of negative affect following social rejection. The studies that relied on one mood measure that only assess overall negative rather than utilizing a mood measure that provides subscales that tap into the specific types of negative moods that those with BPD or BPD traits often experience such as anger, anxiety, and depression, limits the ability to detect the full range of affective changes among those with BPD or BPD traits following social rejection. Future studies could benefit from using other mood measures that capture a wider range of emotional responses often seen among those with BPD or BPD traits as well as measures that have subscales specific to those emotions most commonly associated with BPD (i.e., anger, anxiety, and depression) such as the Profile of Mood States (POMS).

Another possible explanation for the findings from the studies outlined above that those with BPD did not respond differently to social rejection compared to controls is that these studies did not use a dimensional model of BPD, rather participants were grouped as BPD patients and healthy controls. There is a substantial body of literature to support the use of a dimensional model for conceptualizing personality disorders (e.g., Widiger & Trull, 2007). While a full review of the rationale for conceptualizing personality disorders dimensionally is beyond the scope of this paper, there is one reason in particular that provides support for examining BPD traits rather than a diagnosis of BPD. In order to meet criteria for BPD, people must have 5 of the 9 traits identified in the DSM-5

(American Psychiatric Association, 2013). This is problematic because this threshold for diagnosis has been criticized for being an arbitrary cut-off (Widiger & Trull, 2007). There are a number of people that do not meet full criteria for BPD, but still have BPD traits that cause significant problems in their lives. By limiting the use of participants to those who only meet full criteria for BPD, researchers may be arbitrarily excluding participants that could help in providing a better understanding of the full range of characteristics associated with BPD.

A study conducted by Dixon-Gordon, Chapman, Lovasz, and Walters (2011) demonstrates that using a dimensional model of BPD can lead to different results in participants with BPD traits following social rejection. The authors recruited undergraduate students based on their scores on the PAI-BOR. Students that scored greater than or equal to 38 were designated as the High-BP group. Students that scored between 23 and 38 were designated as the Mid-BP group. Students that scored less than 23 were designated as the Low-BP group. The authors used the Cyberball game as the social rejection manipulation. To assess for emotional reactions to the exclusion condition of the Cyberball manipulation, participants completed the negative mood scale on the Positive and Negative Affect Schedule (PANAS). Participants were asked to indicate to what extent they were currently experiencing 10 negative emotions using a five-point likert scale (1= not at all to 5 = extremely). The study found that participants in the High-BP and Mid-BP reported greater negative mood on the PANAS in the exclusion condition of the Cyberball manipulation compared to participants in the Low-BP group

(Dixon-Gordon et al., 2011). This study as well as the study conducted by Tragesser et al. (2008) provides support for the importance of using a dimensional model of BPD when examining the responses of those with BPD traits to social rejection experiences.

Rejection Sensitivity and Borderline Personality Disorder

Another personality trait that is related to BPD is rejection sensitivity. "Rejection sensitivity is conceptualized as a cognitive-affective processing dynamic or disposition to anxiously expect, readily perceive and react in an exaggerated manner to cues of rejection in the behavior of others (Romero-Canyas & Downey, 2005)." There are a number of similarities between rejection sensitivity and BPD. For example, both are hypothesized to involve exaggerated responses to rejection and/or cues of rejection in the behavior of others. However, until recently, few studies have directly examined the relation between rejection sensitivity and BPD.

Staebler, Helbing, Rosenbach, and Renneberg (2011) were among the first researchers to examine the association between rejection sensitivity and BPD. The authors were interested in the relation between rejection sensitivity in patients with BPD compared to other clinical disorders. The study found that participants with BPD reported significantly higher levels of rejection sensitivity compared to healthy controls (Staebler et al., 2011). Results also showed that participants with BPD reported significantly higher levels of rejection sensitivity compared to participants with any other clinical disorder (Staebler et al., 2011). The authors also examined whether levels of rejection sensitivity differed among outpatients and inpatients diagnosed with BPD and they found that scores on the RSQ did not differ significantly among outpatients and

inpatients diagnosed with BPD (Staebler et al., 2011). This was one of the first studies to demonstrate that there is an association between rejection sensitivity and BPD symptoms; however, given the similarities between rejection sensitivity and BPD, this leaves the question as to whether rejection sensitivity is just another way to measure BPD.

Researchers have proclaimed that, while related, rejection sensitivity and BPD are not synonymous. As outlined above, fear of abandonment is one of the defining features of BPD. However, BPD consists of a number of other characteristics. The DSM-5 diagnostic criteria states that BPD is:

> A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity…as indicated by five (or more) of the following: 1. Frantic efforts to avoid real or imagined abandonment, 2. A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation, 3. Identity disturbance: markedly and persistently unstable self-image or sense of self, 4. Impulsivity in at least two areas that are potentially self-damaging…, 5. Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior, 6. Affective instability due to a marked reactivity of mood…, 7. Chronic feelings of emptiness, 8. Inappropriate, intense anger or difficulty controlling anger, 9. Transient, stress-related paranoid ideation or severe dissociative symptoms (American Psychiatric Association, 2013).

Based on this description BPD, it can be seen that, while BPD and rejection sensitivity both include fear of rejection, there are number of characteristics associated with BPD that differentiate these two constructs. More importantly, there are a number of characteristics associated with BPD that could influence the response that those with BPD or BPD traits have to social rejection differently than rejection sensitivity.

Specifically, the impulsivity, affective instability, and inappropriate, intense anger often seen in those with BPD or BPD traits could result in more extreme responses to social rejection compared to those with rejection sensitivity. Although there are a number of unique characteristics associated with BPD that could influence responses to social rejection, there have been no studies that have examined how BPD or BPD traits influence responses to social rejection differently than rejection sensitivity.

Limitations of the Current Literature

One limitation of this area of research is that some studies have found no differences in negative emotional states following social rejection between BPD and controls (e.g., Dixon-Gordon et al., 2013; Lawrence et al., 2011; Renneberg et al., 2011). One explanation for these findings is the social rejection manipulations that were used in these studies. Given that those with BPD or BPD traits have an intense fear of abandonment and intolerance of being alone described by Gunderson (1996), using a rejection manipulations that "triggers" this fear may be a more meaningful social rejection manipulation.

Another limitation of this area of research is that some studies only used mood measures that assessed overall negative affect or ones the authors developed themselves (e.g., Dixon-Gordon et al., 2013; Lawrence et al., 2011; Renneberg et al., 2011). The studies that relied on one mood measure that only assessed for overall negative rather than utilizing a mood measure that provides subscales that tap into the specific types of negative moods that those with BPD or BPD traits often experience such as anger,

anxiety, and depression, limits the ability to detect the full range of affective changes among those with BPD or BPD traits following social rejection.

Another limitation of this area of research is that some of the studies used participants diagnosed with BPD rather than using a dimensional model of BPD (e.g., Dixon-Gordon et al., 2013; Lawrence et al., 2011; Renneberg et al., 2011). By limiting the use of participants to those who only meet full criteria for BPD, researchers may be arbitrarily excluding participants that could help in providing a better understanding of the full range of characteristics associated with BPD. One of the studies that did use a dimensional model of BPD did not oversample for those with BPD traits and did not report the range of scores on the PAI-BOR (Tragesser et al., 2008). Future studies would benefit from using a dimensional model of BPD and oversampling to ensure a range of scores on the PAI-BOR.

A final limitation of this area of research is that there is not a clear understanding of the different roles that BPD or BPD traits and rejection sensitivity play in responses to social rejection. The DSM-5 criteria outlined previously demonstrate a number of characteristics unique to BPD that could have a significant influence on how those with BPD or BPD traits respond to social rejection; however, there are no studies that have examined how BPD or BPD traits influences responses to social rejection differently than rejection sensitivity.

Statement of Purpose

The empirical literature has found that when people experience social rejection, they often respond in negative ways. However, there are some people that may be more

sensitive to social rejection experiences than others. Given that fear of abandonment is one of the defining features of BPD, those with BPD may be particularly sensitive to social rejection experiences. However, few studies have empirically examined how people with BPD or BPD traits respond to social rejection. Therefore, it is important to continue to explore how people with BPD or BPD traits respond to social rejection.

Another personality characteristic of interest is rejection sensitivity. While research has demonstrated that rejection sensitivity and BPD are related constructs there are a number of characteristics unique to BPD that differentiate the two (i.e., impulsivity, affective instability, and inappropriate, intense anger). Therefore, it is important to understand how rejection sensitivity and BPD or BPD traits influence responses to social rejection differently.

The purpose of the present study was to extend upon the extant literature. Specifically, some studies have found no differences in negative emotional states following social rejection between participants with BPD and controls. These results are puzzling as it seems apparent based on our clinical understanding of BPD and the theoretical rational founded in attachment theory that people with BPD should respond very negatively to rejection. One suggestion for these unexpected results is the social rejection manipulation that is being used (Lawrence et al., 2011). It has been suggested that a stronger and more meaningful manipulation of social rejection needs to be used in order to elicit a more extreme response among those with BPD traits. One manipulation that could prove to be a meaningful manipulation of social rejection is the reliving task developed by Pickett et al. (2004).

Although previous studies suggest that people will respond differently to the reliving task depending on whether the memory was of a mild rejection experience or a severe rejection experience (Bernstein & Claypool, 2012), it would be expected that those with BPD or BPD traits would respond very negatively to reliving both a mild and severe rejection experience. Given that fear of abandonment is such a central feature of BPD, any memory of rejection would be expected to "trigger" this fear of abandonment resulting in a negative affective reaction. This would be expected if the rejection memory were something mild, such as a friend not inviting you to their party, or something severe, such as a significant other breaking up with you, because of the extreme fear of abandonment associated with BPD. Although it is expected that there will be similar responses among those higher in BPD traits in both the mild and severe rejection experience, it is possible that the level of severity of the rejection could explain the studies that have found no differences in negative emotional states following social rejection between participants with BPD and controls. Therefore, two levels of severity of a rejection manipulation were used in the present study to explore this possibility. In terms of what would be expected for those lower in BPD traits, it would be expected that they would report a slight increase in negative mood after reliving a mild rejection experience and a greater increase in negative mood after reliving a severe rejection experience.

Additionally, the present study used both the PANAS and the POMS to assess for mood. Two different mood measures were used to ensure that a wider range of terms used to describe mood were provided to participants. Furthermore, the POMS was

used given that it consists of the subscales of anxiety-tension, anger-hostility, and depression-dejection, which are moods commonly associated with BPD traits. In addition, the present study used pre and post-rejection mood measures to control for baseline mood given that people with BPD or BPD traits consistently report greater negative emotional states compared to controls.

Furthermore, numerous studies suggest that a dimensional model of personality is a more appropriate way to conceptualize personality disorders; see Widiger (2011) for a complete review. However, only two of the previous studies that examined how BPD influence responses to social rejection have used a dimensional model of BPD (e.g., Dixon-Gordon et al., 2011; Tragesser et al., 2008). Therefore, a dimensional measure of BPD traits was used in the present study. In addition, only one of the previous studies oversampled for BPD traits (Dixon-Gordon et al., 2011); therefore, the present study oversampled for participants high in BPD traits, allowing for a continuum that includes participants with a range of BPD traits.

Finally, it has been suggested that rejection sensitivity and BPD are related constructs, however the DSM-5 criteria demonstrates that there are a number of characteristics unique to BPD that could have a significant influence on how those with BPD or BPD traits respond to social rejection (e.g., impulsivity, affective instability, and inappropriate, intense anger). Despite this, there have been no studies that have examined how BPD or BPD traits influences responses to social rejection differently than rejection sensitivity. Therefore, the present study examined the extent to which BPD traits accounts for responses to social rejection above and beyond rejection sensitivity.

Three specific research objectives were addressed in the present study: (1) whether individuals higher in BPD traits will perceive both a mild and severe social rejection manipulation as more severe than people lower in BPD traits; (2) whether participants higher in Borderline Personality Disorder (BPD) traits will report a greater increase in negative mood following a personal memory recall of both a mild and severe social rejection experience; (3) whether these effects still hold after accounting for rejection sensitivity.

Hypotheses

The following hypotheses were proposed regarding the association between borderline personality disorder traits, rejection sensitivity, social rejection, difference scores in pre- and post-negative mood, and perceptions of rejection:

1.) It was predicted that there would be a significant main effect for ratings of how negative the social rejection was perceived to be for severe rejection, but not a significant main effect for mild rejection. Additionally, it was predicted that there would be a significant interaction between mild rejection and BPD traits as well as severe rejection and BPD traits for ratings of how negative the social rejection was perceived to be.

2.) It was predicted that there would be a significant main effect for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS for severe rejection, but not a significant main effect for mild rejection. Additionally, it was predicted that there

would be a significant interaction between mild rejection and BPD traits as well as severe rejection and BPD traits for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS.

3.) It was predicted that there would be a significant main effect for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood

4.) scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS for severe rejection, but not a significant main effect for mild rejection. Additionally, it was predicted that there would be a significant interaction between mild rejection and BPD traits as well as severe rejection and BPD traits for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS after partialling out the variance explained by rejection sensitivity.

CHAPTER II

METHOD

Participants

Male and female undergraduate students (n = 157) were recruited from the University of North Carolina at Greensboro introductory psychology subject pool to participate in the study. Some participants were invited to participate in the study based on their scores on the Personality Assessment Inventory-Borderline Features (PAI-BOR; Morey, 1991) that they completed as part of a packet of questionnaires given in mass-screening sessions. Participants scoring .75 standard deviations above the mean for the sample in mass screening on the PAI-BOR were invited to participate in the study to over-sample for those high in BPD traits. 180 participants received a recruitment email or phone call because they scored .75 standard deviations above the mean on the PAI-BOR during mass screening. 46 participants responded to the email or phone call and signed up for the study. The remaining participants participated if they signed up for the study through Experimetrix, regardless of their scores on the PAI-BOR. 111 participants enrolled for the study through open enrollment.

Data collected from 7 participants were excluded from analyses due to the participants providing excessive missing data (defined as failing to complete 5% or more of the items on any one questionnaire). Data collected from 3 participants were excluded

from analyses due to the participants careless responding (defined as participants who reported all 5s on the PANAS or POMS). Therefore, the final sample consisted of 147 undergraduate participants. Participant demographics are reported in Table 1 (all tables and figures are located in Appendix A). As can be seen, the study included participants who were predominantly female (76.9%) and Caucasian (51.8%) or African-American (23.8%), which is consistent with the demographic composition of psychology undergraduates.

Materials

Personality Assessment Inventory-Borderline Features. Personality Assessment Inventory-Borderline Features (PAI-BOR) is a 24-item self-report measure of Borderline Personality Disorder traits. Participants are asked to rate how accurate each item is of them on a 4-point scale (false, slightly true, mainly true, and very true). The PAI-BOR has been shown to have a test-retest reliability coefficient of .73 and has been demonstrated to have good internal consistency with an alpha coefficient of .84 (Trull, 1995). The PAI-BOR was used as the measure of Borderline Personality Disorder traits that participants completed as part of questionnaires given in mass-screening sessions. Participants scoring .75 standard deviations above the mean for the sample in mass screening on the PAI-BOR were invited to participate in the study. In addition, all participants re-completed the PAI-BOR when they attended the study session. Only this second administration of the PAI-BOR was used in data analysis. Trull (1995) suggests using a score of 38 as a cut-off on the PAI-BOR to indicate a high level of borderline

features. Although level of BPD symptoms was viewed as continuous in this study, approximately 20% of the participants in this study scored at or above a 38 on the PAI-BOR. The PAI-BOR was used as the measure of Borderline Personality Disorder traits. Of note, for mass screening for the two semesters in which participants were recruited, approximately 10% of the participants scored at or above a 38 on the PAI-BOR. Thus, the oversampling for this study resulted in an additional 10% of participants that scored at or above a 38 on the PAI-BOR compared to the typical college sample. In addition, the Personality Assessment Inventory Professional Manual provides descriptive statistics for the PAI-BOR in a college sample (n = 1051) (M=22.93, SD=10.33) (Morey, 1991). The mean score on the PAI-BOR for this study is 28.62; thus, oversampling for BPD traits resulted in an elevated mean in comparison to the college sample in the Personality Assessment Inventory Professional Manual.

Positive and Negative Affect Schedule. The PANAS (Watson et al., 1988) is a 20-item self-report measure of positive and negative affect. There are 10 items measuring positive affect and 10 items measuring negative affect. Participants are asked to rate on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely) how they are currently feeling in regards to each of the 20 words. The PANAS has been shown to have test-retest correlations ranging from .79 to .81. The PANAS has demonstrated good internal consistency with alpha coefficients ranging from .85 to .91. Finally, the two scales measuring positive and negative affect have been shown to be largely uncorrelated (Watson et al., 1988). The PANAS was administered as a pre and post-measure of mood.

Given the purposes of this study, pre-post changes on only the negative scale were examined.

Profile of Mood States. The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1981) is a 65-item self-report measure of mood. The items assess for six different mood states; Tension-Anxiety, Anger-Hostility, Fatigue-Inertia, Depression-Dejection, Vigor-Activity, and Confusion-Bewilderment. Participants are asked to rate on a 5-point Likert scale ranging from 1 (not at all) to 5 (extremely) how they are currently feeling in regards to each of the 65 adjectives. The POMS was administered as a pre and post-measure of mood and the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales were used in analyses. These scales were chosen given that these are emotions commonly associated with those with BPD traits (American Psychiatric Association, 2013).

Perceptions of Situation. After the manipulation described below, participants were asked to rate their perceptions of the social situation in their self-selected reliving task. Participants were asked to rate how positive or negative they found the situation to be using a 9-point Likert scale ranging from 1 (very positive) to 9 (very negative).

Rejection Sensitivity Questionnaire. Rejection Sensitivity Questionnaire (RSQ; Downey & Feldman, 1996) is a questionnaire that asks participants about their expectations of rejection in hypothetical situations in which it is possible that an acquaintance, significant other, or family member refuses their request for help, advice or companionship. Responses to these situations vary along two dimensions: (A) degree of

anxiety and concern about the outcome and (B) expectations of acceptance or rejection. Participants are asked to rate their degree of concern or anxiety about the outcome of each situation on a six-point Likert scale ranging from 1 (very unconcerned) to 6 (very concerned). Participants are then asked to rate their expectation of rejection in each situation on a six-point Likert scale ranging from 1 (very unlikely) to 6 (very likely). The RSQ scales have demonstrated good internal consistency. A study conducted with a sample of undergraduates yielded alpha coefficients ranging from .78 to .83 (Downey & Feldman, 1996). The RSQ was used as the measure of rejection sensitivity.

Social Rejection Manipulations. Three levels of a social rejection manipulation were used in the present study (i.e., acceptance, mild rejection, severe rejection). Severe rejection was the primary manipulation. However, a secondary question was whether those higher in BPD would also report significantly higher elevations of negative mood to mild rejection. Participants that were selected to participate in the study, those higher in BPD traits, were randomly assigned to one of three levels of the social rejection manipulation. This was done to ensure that there are a sufficient number of participants higher in BPD traits exposed to each of the three levels of the social rejection manipulation. Additionally, participants who simply signed up for this particular study were randomly assigned to one of the three levels of the social rejection manipulation. The social rejection manipulation used in the present study is based on a reliving task developed by Pickett et al. (2004). Participants were asked to write about a previous social experience in detail. In the present study, the writing was done in a computer

screen text box. Participants randomly assigned to acceptance condition were asked to write about a time in which they felt accepted. “Write for 5 minutes about a time in which you felt accepted in a social situation. This acceptance experience needs to be interpersonal in nature (e.g., a time in which someone chose to date you, or wanted to be your friend).” Participants randomly assigned to mild rejection were asked to write about a time in which they felt somewhat rejected. “Write for 5 minutes about a time in which you felt somewhat rejected in a social situation. This rejection experience needs to be interpersonal in nature (e.g., a time in which someone cancelled plans with you).” Participants randomly assigned to severe rejection condition were asked to write about a time in which they felt the most rejected. “Write for 5 minutes about a time in which you felt the most rejected in a social situation. This rejection needs to be interpersonal in nature (e.g., a time in which someone you loved broke up with you, or your best friend no longer wanted to be your friend).”

To ensure that participants completed the task as requested, two clinical psychology graduate students independently reviewed all responses and were blind to conditions. The reviewers were instructed to code acceptance memories as 1. The reviewers were then instructed to code mild rejection memories as 2. Reviewers were given the following example as a reference for what would constitute a mild rejection memory, a time in which someone cancelled plans with you. Finally, the reviewers were then instructed to code severe rejection memories as 3. Reviewers were given the following examples as a reference for what would constitute a severe rejection memory,

a time in which someone you loved broke up with you, or your best friend no longer wanted to be your friend. Analyses were run to test for interrater agreement. The agreement between raters was 95.2% and the Cohen's kappa was .928, which is an acceptable level of interrater reliability. Data were also evaluated to determine whether the participants who were instructed to write about an acceptance, mild rejection or severe rejection experience actually followed directions. 100% of participants who were asked to write about an acceptance experience actually wrote about an acceptance experience. Additionally, 100% of participants who were asked to write about a severe rejection experience actually wrote about a severe rejection experience. According to one coder, only 80% of participants who were asked to write about a mild rejection experience actually wrote about a mild rejection experience. The other 20% of participants who were asked to write about a mild rejection experience actually wrote about a severe rejection experience based on the examples provided. According to the other coder, only 75% of participants who were asked to write about a mild rejection experience actually wrote about a mild rejection experience. The other 25% of participants who were asked to write about a mild rejection experience actually wrote about a severe rejection experience based on the examples provided. The coders agreed that 20% of participants who were asked to write about a mild rejection experience actually wrote about a severe rejection experience. However, one coder rated three additional "mild" rejection experiences as severe rejection.

Procedures

Some participants were invited to participate in the study based on their scores on the PAI-BOR that they completed on-line on Qualtrics in mass-screening sessions. In order to form a continuum of participants with BPD traits, other participants were allowed to participate if they signed up for the study through a website called Experimetrix regardless of their scores on the PAI-BOR. This website is used by the psychology department to coordinate participation of introductory psychology students in various experiments. Students log in to Experimetrix, choose an experiment they would like to participate in, and choose the day and time of a session to attend.

When participants arrived to the study, they were asked to read the consent form (located in Appendix B). The consent form provided a description of the study. This description explained that the researchers are interested in whether factors such as personality influence responses to different social experiences. Participants completed a demographics form, the PAI-BOR, the RSQ, the PANAS, and the POMS in Qualtrics. All participants completed all questionnaires and these scores were used in the analyses. Scores on the PAI-BOR from the mass screening questionnaires were only used for preselection.

Next, based on quasi-random assignment participants were assigned to one of the three levels of the reliving task, involving writing in a text box on a computer screen. Participants randomly assigned to the acceptance condition were asked to write about a time in which they felt accepted. Participants randomly assigned to the mild rejection

condition were asked to write about a time in which they felt somewhat rejected. Participants randomly assigned to the severe rejection condition were asked to write about a time in which they felt the most rejected. Upon completion of the reliving task, participants completed the PANAS and POMS a second time. Participants also completed the Perceptions of Situation questionnaire, rating how positive or negative they found the reliving task to be. After participants completed the study, they were given a list of mental health referrals in case they were experiencing any distress (located in Appendix C). All participants received course credit for their time.

CHAPTER III

RESULTS

Preliminary Analyses

Descriptive statistics for all scales are reported in Table 2. Cronbach's alpha was calculated in order to examine the internal consistency of each scale, which all fell within the acceptable to excellent range. The normality of the data was also assessed and, consistent with the guidelines provided by Kline (2011), it was found that the scores for most scales were normally distributed (e.g., the skewness statistics were $< \pm 1$). The difference scores on the POMS Anger-Hostility scale was positively skewed. Scatter plots were evaluated and three outliers were removed from the data set. After removing these three data points the normality of the data was reassessed and, consistent with the guidelines provided by Kline (2011), it was found that this scale was normally distributed.

In order to determine whether there were any significant differences between participants in the acceptance and mild and severe rejection reliving conditions, independent sample *t*-tests were conducted. Descriptive statistics using *t*-tests for equality means for gender, ethnicity, rejection sensitivity, and BPD traits for mild and severe rejection are reported in Table 3. Participants in the mild and severe rejection conditions did not differ in ethnicity. However, participants in the mild and severe rejection

conditions did differ in gender and level of rejection sensitivity. There were significantly more females than males in the severe rejection condition compared to the mild rejection condition. Additionally, participants in the severe rejection condition were significantly higher in levels of rejection sensitivity than participants in the mild rejection condition. Importantly, participants did not differ on PAI-BOR scores. Descriptive statistics using *t*-tests for equality of means for gender, ethnicity, rejection sensitivity, and BPD traits for acceptance and severe rejection are reported in Table 4. Participants in the acceptance and severe rejection conditions did not differ in ethnicity, gender, level of rejection sensitivity or level of BPD traits. Descriptive statistics using *t*-tests for equality means for gender, ethnicity, rejection sensitivity, and BPD traits for mild rejection and acceptance conditions are reported in Table 5. Participants in the mild rejection and acceptance condition did not differ in ethnicity. However, participants in the mild rejection and acceptance condition did differ in gender and level of rejection sensitivity. There were significantly more females than males in the acceptance condition compared to the mild rejection condition. Additionally, participants in the acceptance condition were significantly higher in levels of rejection sensitivity than participants in the mild rejection condition. Importantly, participants did not differ on PAI-BOR scores.

Given that a number of participants wrote about a severe rejection experience when they were instructed to write about a mild rejection experience, analyses were conducted in order to determine if there were significant differences between the mild and severe conditions on the dependent variables (i.e., the negative mood scale of the

PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS). Analyses showed that there were no significant differences between the mild and severe rejection conditions on the dependent variables; therefore, for the purpose of the analyses, these groups were collapsed into one rejection condition. In order to determine whether there were any significant differences between participants in the acceptance and collapsed rejection condition, independent sample *t*-tests were conducted. Descriptive statistics using *t*-tests for equality means for gender, ethnicity, rejection sensitivity, and BPD traits for acceptance and rejection conditions are reported in Table 6. Participants in the acceptance and rejection conditions did not differ in ethnicity and level of rejection sensitivity. However, participants in the acceptance and rejection conditions did differ in gender. There were significantly more females than males in the acceptance condition compared to the mild rejection condition. Importantly, participants did not differ on PAI-BOR scores.

Pearson Correlations

Pearson correlations between each of the study variables are reported in Table 7.

Hierarchical Multiple Regression

For all multiple regression analyses, the social rejection manipulation was dummy coded with one representing the collapsed rejection condition and zero representing the acceptance condition. Additionally, the BPD traits variable was mean-centered before creating interaction term for the analyses, as recommended by Cohen, Cohen, West, and

Aiken (2002). Effect size was calculated for each regression. Of note, an f^2 of 0.02 is considered a 'small' effect size, an f^2 of 0.15 represents a 'medium' effect size and an f^2 of 0.35 a 'large' effect size (Cohen, 1988).

Hypothesis 1

Perception of Situation. The first regression analysis was conducted to test the first hypothesis that BPD traits would account for significant variance in ratings of how negative the social rejection was perceived to be. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the first regression analysis with Perceptions of Situation as the dependent variable can be seen in Table 8. The first step in the regression accounted for approximately 67% of the variance in Perceptions of Situation scores ($R^2 = .665$) ($f^2 = 1.985$). With regard to the main effects, rejection was uniquely associated with Perceptions of Situation scores; however, BPD traits were not uniquely associated with Perceptions of Situation scores and did not account for any additional variance ($\Delta R^2 = .000$) ($f^2 = .000$). When the interaction terms were entered in the third step, the interaction between BPD traits and rejection did not account for any additional variance in Perceptions of Situation scores ($\Delta R^2 = .001$) ($f^2 = .002$). The total model accounted for approximately 67% of the total variance in Perceptions of Situation scores ($R^2 = .666$).

Hypothesis 2

PANAS. The second regression analysis was conducted to test the second hypothesis that participants higher in BPD traits would report higher elevations of negative mood on the PANAS negative mood scale after reliving a rejection experience. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the second multiple regression analysis with the PANAS negative mood scale as the dependent variable can be seen in Table 9. The first step in the regression accounted for approximately 3% of the total variance in scores on the PANAS negative mood scale ($R^2 = .026$) ($f^2 = .026$). With regard to the main effects, rejection was uniquely associated with scores on the PANAS negative mood scale; however, BPD traits were not uniquely associated with scores on the PANAS negative mood scale and only accounted for an additional 1% of the total variance ($\Delta R^2 = .017$) ($f^2 = .017$). When the interaction term was entered in the third step, the interaction between BPD traits and rejection was not significant. The third step accounted for an additional 2% of the total variance in difference scores on the PANAS negative mood scale ($\Delta R^2 = .021$) ($f^2 = .022$).

Tension-Anxiety. The third regression analysis was conducted to test the second hypothesis that participants higher in BPD traits would report higher elevations of negative mood on the Tension-Anxiety scale of the POMS after reliving a rejection

experience. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the third multiple regression analysis with the Tension-Anxiety scale of the POMS as the dependent variable can be seen in Table 10. The first step in the regression accounted for 1% of the total variance in scores on the Tension-Anxiety scale of the POMS ($R^2 = .014$) ($f^2 = .014$). With regard to the main effects, rejection was not uniquely associated with scores on the Tension-Anxiety scale of the POMS; however, BPD traits were uniquely associated with scores on the Tension-Anxiety scale of the POMS and accounted for an additional 4% of the total variance ($\Delta R^2 = .042$) ($f^2 = .044$). When the interaction terms were entered in the third step, the interaction between BPD traits and rejection was not significant. The third step accounted for an additional 2% of the total variance in difference scores on the Tension-Anxiety scale of the POMS ($\Delta R^2 = .022$) ($f^2 = .023$).

Anger-Hostility. The fourth regression analysis was conducted to test the second hypothesis that participants higher in BPD traits would report higher elevations of negative mood on the Anger-Hostility scale of the POMS after reliving a rejection experience. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the fourth multiple regression analysis with the Anger-Hostility scale of the POMS as the dependent variable can be seen in Table 11. The first step in

the regression accounted for approximately 17% of the total variance in scores on the Anger-Hostility scale of the POMS ($R^2 = .168$) ($f^2 = .201$). With regard to the main effects, rejection was uniquely associated with scores on the Anger-Hostility scale of the POMS; however, BPD traits were not uniquely associated with scores on the Anger-Hostility scale of the POMS and only accounted for an additional 1% of the variance ($\Delta R^2 = .015$) ($f^2 = .018$). When the interaction term was entered in the third step, the interaction between BPD traits and rejection was significant. The third step accounted for an additional 5% of the total variance in difference scores on the Anger-Hostility scale of the POMS ($\Delta R^2 = .052$) ($f^2 = .067$).

A simple slopes analysis indicated that BPD traits interacted with the manipulation condition. Participants higher in BPD traits reported no change in Anger-Hostility in the acceptance condition and an increase in Anger-Hostility in the rejection condition ($ß = 4.554$, $p < .000$) (see Figure 1). However, as level of BPD traits decreased, the association between the manipulation condition and Anger-Hostility became non-significant. In other words, the slope of the line for participants lower BPD traits, across the manipulation conditions was not significantly different from zero.

Depression-Dejection. The fifth regression analysis was conducted to test the second hypothesis that participants higher in BPD traits would report higher elevations of negative mood on the Depression-Dejection scale of the after reliving a rejection experience. The main effect of rejection was entered in the first step of the regression. In

the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the fifth multiple regression analysis with the Depression-Dejection scale of the POMS as the dependent variable can be seen in Table 12. The first step in the regression accounted for 6% of the total variance in scores on the Depression-Dejection scale of the POMS ($R^2 = .063$) ($f^2 = .067$). With regard to the main effects, rejection was uniquely associated with scores on the Depression-Dejection scale of the POMS; however, BPD traits were not uniquely associated with scores on the Depression-Dejection scale of the POMS and did not account for any additional variance ($\Delta R^2 = .001$) ($f^2 = .001$). When the interaction term was entered in the third step, the interaction between BPD traits and rejection was significant. The third step accounted for an additional 6% of the total variance in difference scores on the Depression-Dejection scale of the POMS ($\Delta R^2 = .064$) ($f^2 = .073$).

A simple slopes analysis indicated that BPD traits interacted with the manipulation condition. Participants higher in BPD traits reported a decrease in Depression-Dejection in the acceptance condition and an increase in Depression-Dejection in the rejection condition ($ß = 2.922$, $p < .000$) (see Figure 2). However, as level of BPD traits decreased, the association between the manipulation condition and Depression-Dejection became non-significant. In other words, the slope of the line for participants lower BPD traits, across the manipulation conditions was not significantly different from zero.

Hypothesis 3

PANAS. The sixth regression analysis was conducted to test the third hypothesis that participants higher in BPD traits would report significantly higher elevations in negative mood on the PANAS after reliving a rejection experience, after partialling out the variance explained by rejection sensitivity. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the sixth regression analysis with difference scores on the PANAS negative mood scale as the dependent variable can be seen in Table 13. The first step in the regression accounted for approximately 3% of the total variance in difference scores on the PANAS negative mood scale ($R^2 = .026$) ($f^2 = .026$). With regard to the main effects, rejection was uniquely associated with scores on the PANAS negative mood scale; however, neither BPD traits nor rejection sensitivity were not uniquely associated with scores on the PANAS negative mood scale and only accounted for an additional 2% of the total variance ($\Delta R^2 = .017$) ($f^2 = .017$). When the interaction term for rejection and rejection sensitivity was entered in the third step, the interaction was not significant and did not account for additional variance in difference scores on the PANAS negative mood scale ($\Delta R^2 = .001$) ($f^2 = .001$). Finally, when the interaction term for rejection and BPD traits was entered in the fourth step, the interaction was not significant. The fourth step in the analysis accounted for an additional 2% of the total variance in difference scores on the PANAS negative mood scale ($\Delta R^2 = .020$) ($f^2 = .021$).

Tension-Anxiety. The seventh regression analysis was conducted to continue testing the third hypothesis that participants higher in BPD traits would report significantly higher elevations in negative mood on the Tension-Anxiety scale of the POMS after reliving a rejection experience, after partialling out the variance explained by rejection sensitivity. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the seventh regression analysis with the difference scores on the POMS Tension-Anxiety scale as the dependent variable can be seen in Table 14. The first step in the regression accounted for 1% of the total variance in difference scores on the POMS Tension-Anxiety scale ($R^2 = .014$) ($f^2 = .014$). The main effect of rejection did not predict difference scores on the POMS Tension-Anxiety scale. The main effect of BPD traits and rejection sensitivity were entered into the second step. Rejection sensitivity did not predict difference scores on the POMS Tension-Anxiety scale. However, BPD traits predicted difference scores on the POMS Tension-Anxiety scale. The second step in the analysis accounted for an additional 4% of the total variance ($\Delta R^2 = .043$) ($f^2 = .045$). When the interaction term for rejection and rejection sensitivity was entered in the third step, the interaction was not significant and did not account for additional variance in difference scores on the POMS Tension-Anxiety scale ($\Delta R^2 = .002$) ($f^2 = .002$). Finally, when the interaction term for rejection and BPD traits was entered in the fourth step, the interaction was significant. The fourth step in the analysis accounted for approximately

an additional 3% of the total variance in difference scores on the POMS Tension-Anxiety scale ($\Delta R^2 = .027$) ($f^2 = .029$). The total model accounted for approximately 9% of the total variance in difference scores on the POMS Tension-Anxiety scale ($R^2 = .086$).

A simple slopes analysis indicated that BPD traits interacted with the manipulation condition after partialling out the variance explained by rejection sensitivity. Participants higher in BPD traits reported a decrease in Tension-Anxiety in the acceptance condition and an increase in Tension-Anxiety in the rejection condition (ß = 1.011, $p < .000$) (see Figure 3). However, as level of BPD traits decreased, the association between the manipulation condition and Tension-Anxiety became non-significant. In other words, the slope of the line for participants lower BPD traits, across the manipulation conditions was not significantly different from zero.

Anger-Hostility. The eighth regression analysis was conducted to continue testing the third hypothesis that participants higher in BPD traits would report significantly higher elevations in negative mood on the Anger-Hostility scale of the POMS after reliving a rejection experience, after partialling out the variance explained by rejection sensitivity. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the eighth multiple regression analysis with difference scores on the POMS Anger-Hostility scale as the dependent variable can be seen in Table 15. The first step in the regression accounted for approximately 17% of the total variance in difference

scores on the POMS Anger-Hostility scale ($R^2 = .168$) ($f^2 = .201$). The main effect of rejection predicted difference scores on the POMS Anger-Hostility scale. The main effect of BPD traits and rejection sensitivity were entered into the second step and neither predicted difference scores on the POMS Anger-Hostility scale. The second step in the analysis only accounted for an additional 1% of the total variance ($\Delta R^2 = .017$) ($f^2 = .020$). When the interaction term for rejection and rejection sensitivity was entered in the third step, the interaction was significant. The third step in the analysis accounted for approximately an additional 3% of the variance in difference scores on the POMS Anger-Hostility scale ($\Delta R^2 = .027$) ($f^2 = .034$). Finally, when the interaction term for rejection and BPD traits was entered in the fourth step, the interaction was significant. The fourth step in the analysis accounted for an additional 4% of the total variance in difference scores on the POMS Anger-Hostility scale ($\Delta R^2 = .039$) ($f^2 = .052$).

A simple slopes analysis indicated that rejection sensitivity interacted with the manipulation condition. Participants higher in rejection sensitivity reported a decrease in Anger-Hostility in the acceptance condition and an increase in Anger-Hostility in the severe rejection condition ($ß = 4.554$, $p < .000$) (see Figure 4). However, as level of BPD traits decreased, the association between the manipulation condition and Anger-Hostility became non-significant. In other words, the slope of the line for participants lower BPD traits, across the manipulation conditions was not significantly different from zero.

A simple slopes analysis indicated that BPD traits interacted with the manipulation condition after partialling out the variance explained by rejection sensitivity. Specifically, participants higher in BPD traits reported no change in Anger-

Hostility in the acceptance condition and an increase in Anger-Hostility in the rejection condition (ß = 4.554, $p < .000$) (see Figure 5). However, as level of BPD traits decreased, the association between the manipulation condition and Anger-Hostility became non-significant. In other words, the slope of the line for participants lower BPD traits, across the manipulation conditions was not significantly different from zero.

Depression-Dejection. The ninth regression analysis was conducted to continue testing the third hypothesis that participants higher in BPD traits would report significantly higher elevations in negative mood on the Depression-Dejection scale of the POMS after reliving a rejection experience, after partialling out the variance explained by rejection sensitivity. The main effect of rejection was entered in the first step of the regression. In the second step of the regression, BPD traits were entered. In the third step of the regression, the interaction between rejection and BPD traits was entered.

The result of the ninth regression analysis with difference scores on the POMS Depression-Dejection scale as the dependent variable can be seen in Table 16. The first step in the regression accounted for approximately 6% of the total variance in difference scores on the POMS Depression-Dejection scale ($R^2 = .063$) ($f^2 = .067$). The main effect rejection predicted difference scores on the POMS Depression-Dejection scale. The main effect of BPD traits and rejection sensitivity were entered into the second step and neither predicted difference scores on the POMS Depression-Dejection scale. The second step in the analysis only accounted for an additional 1% of the total variance ($\Delta R^2 = .011$) ($f^2 = .011$). When the interaction term for rejection and rejection sensitivity was entered in the third step, the interaction was not significant. The third step in the analysis did not

account for any additional variance in difference scores on the POMS Depression-Dejection scale ($\Delta R^2 = .004$) ($f^2 = .004$). Finally, when the interaction term for rejection and BPD traits was entered in the fourth step, the interaction was significant. The fourth step in the analysis accounted for an additional 6% of the total variance in difference scores on the POMS Depression-Dejection scale ($\Delta R^2 = .060$) ($f^2 = .069$).

A simple slopes analysis indicated that BPD traits interacted with the manipulation condition after partialling out the variance explained by rejection sensitivity. Participants higher in BPD traits reported a decrease in Depression-Dejection in the acceptance condition and an increase in Depression-Dejection in the rejection condition ($ß = 2.922$, $p < .000$) (see Figure 6). However, as level of BPD traits decreased, the association between the manipulation condition and Depression-Dejection became non-significant. In other words, the slope of the line for participants lower BPD traits, across the manipulation conditions was not significantly different from zero.

CHAPTER IV

DISCUSSION

The goal of the present study was to explore the association between Borderline Personality Disorder (BPD) traits, rejection sensitivity, social rejection, and mood. The empirical literature has found that when people experience social rejection, they typically respond in negative ways (e.g., Baumeister, DeWall, Ciarocco, & Twenge, 2005; Wesselmann, Butler, Williams, & Pickett, 2010). However, there are some people who may be more sensitive to social rejection experiences than others. Given that fear of abandonment is one of the central features of BPD (American Psychiatric Association, 2013), those with BPD may be particularly sensitive to social rejection experiences. However, few studies have empirically examined how people with BPD or BPD traits respond to social rejection. Those studies that have been conducted have primarily used the Cyberball manipulation and have found no differences between BPD patients and controls in negative mood (e.g., Dixon-Gordon et al., 2013; Lawrence et al., 2011; Renneberg et al., 2011). The results from these studies are puzzling, as it seems apparent that people with BPD should respond very negatively to rejection.

One explanation for these unexpected findings is the type of rejection manipulation used (Lawrence et al., 2011). It has been suggested that a stronger and more meaningful manipulation of social rejection needs to be used in order to elicit a

more extreme response among those with BPD traits. While the Cyberball manipulation has been found to be successful manipulation of social rejection, there may be manipulations that are more upsetting to those with BPD traits, such a reliving a previous rejection experience because of the interpersonal nature of this manipulation. Another possible explanation for these findings is the measures that were used to assess for mood following social rejection. Previous studies used mood measures that assessed overall negative affect or ones the authors developed themselves (e.g., Dixon-Gordon et al., 2013; Lawrence et al., 2011; Renneberg et al., 2011). Using mood measure to assess overall negative mood rather than utilizing a mood measure that provides subscales that tap into the specific types of negative moods that those with BPD or BPD traits often experience such as anger, anxiety, and depression, limits the ability to detect the full range of affective changes among those with BPD or BPD traits following social rejection. A final explanation for these findings is that these studies did not use a dimensional model of BPD; rather participants were grouped as BPD patients and healthy controls (e.g., Dixon-Gordon et al., 2013; Lawrence et al., 2011; Renneberg et al., 2011). There is a substantial body of literature to support the use of a dimensional model for conceptualizing personality disorders (e.g., Widiger & Trull, 2007). By limiting the use of participants to those who only meet full criteria for BPD, researchers may be arbitrarily excluding participants that could help in providing a better understanding of the full range of characteristics associated with BPD. Additionally, it has been suggested that rejection sensitivity and BPD are related constructs, however, the DSM-5 criteria

demonstrates that there are a number of characteristics unique to BPD that could have a significant influence on how those with BPD or BPD traits respond to social rejection (e.g., impulsivity, affective instability, and inappropriate, intense anger). However, there have been no studies that have examined how BPD influences responses to social rejection differently than rejection sensitivity.

This dissertation examined three research questions: (1) whether individuals higher in BPD traits will perceive both a mild and severe social rejection manipulation as more severe than people lower in BPD traits; (2) whether participants higher in Borderline Personality Disorder (BPD) traits will report a greater increase in negative mood following a personal memory recall of both a mild and severe social rejection experience; (3) whether these effects still hold after accounting for rejection sensitivity. Three specific hypotheses were offered for these questions. It was predicted that there would be a significant main effect for ratings of how negative the social rejection was perceived to be for severe rejection, but not a significant main effect for mild rejection. Additionally, it was predicted that there would be a significant interaction between mild rejection and BPD traits as well as severe rejection and BPD traits for ratings of how negative the social rejection was perceived to be. Additionally, it was predicted that there would be a significant main effect for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS for severe rejection, but not a significant main effect for mild rejection. Additionally, it was

predicted that there would be a significant interaction between mild rejection and BPD traits as well as severe rejection and BPD traits for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS. Finally, it was predicted that there would be a significant interaction between mild rejection and BPD traits as well as severe rejection and BPD traits for elevations of negative mood (as assessed by pre-post difference scores) on the negative mood scale of the PANAS and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS after partialling out the variance explained by rejection sensitivity.

Although this purpose of this dissertation was to test these hypotheses, there was no significant difference between the mild and severe rejection conditions on the dependent variables. This could be due to the fact that some participants wrote about severe rejection experiences when they were instructed to write about a mild rejection experience. Given the lack of difference between the two conditions, they were collapsed into one rejection condition. As such, the original hypotheses regarding the different responses among mild and severe rejection could not be tested; rather analyses were conducted to examine the difference between acceptance and one rejection condition.

Perception of Social Rejection

Participants higher in BPD traits did not rate the rejection condition as more negative than those participants lower in BPD traits. The main effect of rejection accounted for a large portion of the variance; thus it is not surprising that the interaction

between BPD traits and rejection did not account for any additional variance in negative perceptions of the rejection condition. These results also are consistent with the proposal by Baumeister et al. (1995) that almost everyone perceives social rejection as very negative.

BPD Traits and Responses to Social Rejection

Although the original hypotheses could not be tested, several conclusions can still be drawn from these findings. First, participants higher in BPD traits reported a significant increase in Anger-Hostility and Depression-Dejection as measured by the POMS after reliving a rejection experience. This suggests that it is possible that it is the type of social rejection manipulation used that influences the response of participants. This supports the suggestion by some researchers that a more salient manipulation of social rejection may elicit a more extreme response among those with BPD traits (Lawrence et al., 2011). Specifically, people with BPD or BPD traits have an intense fear of abandonment and being alone (Gunderson, 1996). Using a social rejection manipulation that reminds people with BPD or BPD traits of previous personal abandonment could elicit a more intense emotional reaction than those that are temporary and lab-based forms of rejection. However, given that this study did not compare the reliving task to other rejection manipulations, this conclusion cannot be firmly made.

This study found that participants higher in BPD traits reported higher elevations in certain types of negative mood following social rejection. Specifically, participants higher in BPD traits reported a significant increase in Anger-Hostility and Depression-

Dejection as measured by the POMS after reliving a rejection experience. However, participants higher in BPD traits did not report significantly higher elevations on the PANAS or Anxiety-Tension as measured by the POMS after reliving a rejection experience. It is possible social rejection results in specific types of negative moods often associated with BPD traits, such as anger-hostility. This is consistent with the intense anger associated with BPD (American Psychiatric Association, 2013). These findings suggest that the type of mood measure used makes a difference in the ability to detect mood changes among participants higher in BPD traits following social rejection. Certain mood measures may be better at detecting the changes in mood among participants higher in BPD traits following social rejection. In addition, this could suggest that participants higher in BPD traits only experience changes in specific moods following social rejection.

BPD Traits and Rejection Sensitivity and Responses to Social Rejection

Results from this study demonstrate that BPD traits predicted increases in negative mood after removing the variance explained by rejection sensitivity. Specifically, participants higher in BPD traits reported a significant increase in Tension-Anxiety, Anger-Hostility and Depression-Dejection as measured by the POMS after reliving a rejection experience after accounting for rejection sensitivity. These findings support the suggestion that rejection sensitivity and BPD are related constructs, but they are not synonymous.

There are number of characteristics seen among those with BPD that could account for the increase in negative mood above and beyond rejection sensitivity. One

trait that could account for these differences is the affective instability (e.g., intense episodic dysphoria, irritability, or anxiety) seen among those with BPD (American Psychiatric Association, 2013). Another trait that could account for these differences is the "inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)" seen among those with BPD (American Psychiatric Association, 2013). Another trait that could account for these differences is the impulsivity that is characteristic of those with BPD (American Psychiatric Association, 2013). It should be noted that contrary to previous studies (e.g., Ayduk, Downey & Kim, 2001), the interaction between rejection and rejection sensitivity did not predict negative mood, with the exception of anger-hostility.

Implications

These findings have important implications in terms of clinical interventions for those with BPD. For example, recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior seen among those with BPD often follow episodes of intense negative mood. Given that remembering previous social rejection experiences results in increases in negative affect, it is possible that remembering or ruminating about previous social rejection experiences could lead those with BPD to engage in self-harm or become suicidal. Thus, it is important for clinicians to be aware if BPD clients are ruminating about a previous rejection experience so they can intervene before the client engages in self-harm or begins having suicidal ideation.

There are a number of clinical interventions that have been developed to help those with BPD cope with the intense negative emotions. The therapy that research has

shown to be most efficacious in treating BPD is Dialectical Behavior Therapy (DBT) developed by Marsha Linehan (1993). One of the skills taught in DBT is distress tolerance (Linehan, 1993). This skill may be particularly helpful for people with BPD who have recently experienced social rejection or who are ruminating about a previous rejection experience as it gives strategies for coping with intense negative emotion other than self-harm. Clinicians could review distress tolerance strategies with BPD clients if they are currently using DBT as the treatment modality or they can teach them these specific skills if they are not currently teaching DBT to cope with the negative emotions that follow a recent rejection experience or ruminating about a previous rejection experience.

Strengths

There are several strengths of the present study. First, this study used pre and post-rejection mood measures. Previous studies have not assessed for mood prior to the rejection manipulation. This limits the ability to determine whether the rejection manipulation was responsible for the differences in mood. In addition, studies have shown that people with BPD or BPD traits consistently report greater negative emotional states compared to controls (e.g., Renneberg et al., 2011; Staebler et al., 2009; Stiglmayr et al., 2005). Results from this study indeed found that participants higher in BPD traits reported significantly higher levels of negative mood prior to the manipulation on the PANAS negative mood scale and on the Tension-Anxiety, Anger-Hostility, and Depression-Dejection scales of the POMS. Using pre and post-rejection mood measures allows for accounting for greater baseline negative affect among those with BPD or BPD

traits. In addition, this study used both the Positive and Negative Affect Schedule (PANAS) and the Profile of Mood States (POMS) to assess for mood. Two different mood measures provided participants with a wider range of terms used to describe mood. Another strength of the present study is that it oversampled for participants high in BPD traits, allowing for a continuum that includes participants with a range of BPD traits. Previous studies did not oversample for BPD traits and thus did not have many participants that were high on these traits.

Another strength of the present study is the type of social rejection manipulation that was used. Previous studies have used a variety of social rejection manipulations (e.g., Renneberg et al., 2011; Tragesser et al., 2008). There is empirical support to expect that the type of the rejection manipulation being used will influence the response of participants (Bernstein & Claypool, 2012). The present study used a social rejection manipulation that is more personal to those with BPD traits, recalling personal previous "abandonment" experiences.

A final strength of the present study is that BPD traits were examined rather than participants who met full criteria for BPD. By limiting the use of participants to those who only meet full criteria for BPD, researchers may be arbitrarily excluding participants that could help in providing a better understanding of the full range of characteristics associated with BPD. By using a dimensional model of BPD, this allowed the present study to examine how people with varying degrees of BPD traits respond to social rejection.

Limitations

Although this study provides useful information about the association between BPD traits, social rejection, and mood, there are several limitations that should be considered. First, although this study compared the severity of two levels of the same social rejection manipulation, these two levels were functionally the same and produced comparable results. This study did not compare the severity of different types of social rejection manipulations (e.g., Cyberball, Reliving task). Therefore the effect of the interaction between BPD traits and different types of social rejection on mood cannot be concluded from these data. A second limitation of the present study is that this study only measured the effect of social rejection on mood. This study did not examine the effect of social rejection on behavior. Therefore the effect of social rejection on behavior (e.g., aggression) cannot be concluded from these data. Another limitation of the present study is that this study did not include any physiological measures of distress. Another limitation of the present study is that there was no condition for reliving a non-rejection negative event as done in the study by Pickett et al. (2004). This limits the ability to determine whether the increase in negative mood among participants higher in BPD traits is due to reliving a rejection experience or any negative experience. A final limitation of the present study is that participants were asked to write for 5 minutes about a time in which the participant felt accepted, somewhat rejected, or the most rejected in a social situation. While writing about the social experience was used as the reliving task, the extent to which the participants actually "relived" the social experience was not

measured. Moreover, about 20-25% of the participants who were asked to write about a mild rejection, actually wrote about a severe rejection, as judged by the coders.

Future Research

Further research is needed to continue to clarify the association between BPD traits, social rejection, and mood. There are several ways in which future research could be improved to further our understanding of the relationships between these constructs.

First, future studies should consider comparing different types of social rejection manipulations. The results from this study suggest that the type of social rejection manipulation used could provide a possible explanation for the unexpected findings from the studies described above that there were no differences between BPD patients and controls in negative mood following the Cyberball manipulation (e.g., Lawrence et al., 2011; Renneberg et al., 2011). It would be important for future research to compare different types of social rejection manipulations to examine whether these unexpected findings in the literature could be due to the type of rejection manipulation that has been used.

Second, future studies should consider examining the effect of BPD traits on behavioral responses to social rejection. Previous research has shown that people have different behavioral responses to social rejection (e.g., Bourgeois & Leary, 2001; Wesselmann et al., 2010). Therefore, it is important that future research assess for behavioral responses to social rejection among participants higher in BPD traits. This is especially important given the intense emotional reactions and destructive behaviors,

such as self-harm or suicidal behaviors, to perceived or real abandonment sometimes seen among those with BPD.

Furthermore, future studies should consider examining the effect of BPD traits on physiological responses to social rejection. Previous research has shown that those with BPD show certain types of physiological responses to social rejection (e.g., skin conductance responses) (Dixon-Gordon et al., 2011). Therefore it is important that future research assess for other types of physiological responses to social rejection among participants higher in BPD traits, such as cortisol levels pre and post-rejection.

Finally, the results of this study and previous research suggest that rejection sensitivity and BPD are related, but not synonymous constructs. There are three symptoms in particular seen in those with BPD that could be responsible for the negative responses to social rejection above and beyond what can be explained by rejection sensitivity (i.e., impulsivity, affective instability, and inappropriate, intense anger or difficulty controlling anger) (American Psychiatric Association, 2013). Therefore, future studies should continue to explore how rejection sensitivity and BPD traits influence responses to social rejection differently and what particularly BPD traits are related to these differences.

Conclusions

The goal of the present study was to explore the association between Borderline Personality Disorder (BPD) traits, rejection sensitivity, social rejection, mood, and perceptions of rejection. There are number of conclusions that can be made from this study. First, results provide support that people higher in BPD traits do report more of

some types of negative affect following a social rejection manipulation, compared to people lower in BPD traits. These results also provide a possible explanation for the unexpected findings in the literature that those with BPD did not report greater negative affect compared to controls (e.g., Lawrence et al., 2011; Renneberg et al., 2011). Results suggest that certain types of dependent measures may be more sensitive to rejection manipulations. Results also suggest that the type of the social rejection manipulation being used can make a difference in the responses of participants. Consistent with the theoretical rational that using a social rejection manipulation that reminds people with BPD traits of previous personal abandonment would be expected to elicit a more intense emotional reaction, the present study found that participants higher in BPD traits reported a significant increase in Anger-Hostility and Depression-Dejection as measured by the POMS after reliving a rejection experience. Additionally, the present study found that participants higher in BPD traits reported a significant increase in Tension-Anxiety as measured by the POMS after reliving a rejection experience and after partialling out the variance explained by rejection sensitivity. This finding suggests that future studies examining the responses participants higher in BPD traits could benefit from using social rejection manipulations that are more personal in nature.

Another conclusion that can be made is that the type of mood measure used makes a difference in the ability to detect mood changes among participants higher in BPD traits following social rejection. For example, participants higher in BPD traits reported a significant increase in Anger-Hostility and Depression-Dejection as measured by the POMS after reliving a rejection experience. Additionally, participants higher in

BPD traits reported a significant increase in Tension-Anxiety as measured by the POMS after reliving a rejection experience and after partialling out the variance explained by rejection sensitivity. However, participants higher in BPD traits did not report significantly higher elevations on the PANAS after reliving a rejection experience. It is possible that social rejection results in specific types of negative moods often associated with BPD traits, such as anger-hostility. This fits with our clinical understanding of BPD. One of the criteria for BPD in the DSM-5 is "inappropriate, intense anger or difficulty controlling anger" (American Psychiatric Association, 2013). These findings suggest that the type of mood measure used makes a difference in the ability to detect mood changes among participants higher in BPD traits following social rejection. Certain mood measures may be better at detecting the changes in mood among participants higher in BPD traits following social rejection. This could suggest that participants higher in BPD traits only experience changes in specific moods following social rejection. Additionally, these finding suggest that future studies examining the responses that participants higher in BPD traits have to social rejection should include different mood measures to ensure that a wider range of terms used to describe mood are provided to participants in order to observe these differences.

Finally, results showed that participants higher in BPD traits did report a greater increase in certain negative moods following social rejection after accounting for rejection sensitivity. These findings support suggestions that rejection sensitivity and BPD are related constructs, but they are not synonymous. These findings are also

consistent with our clinical understanding that BPD is a serious mental illness characterized by more than just sensitivity to or fear of rejection. For example, people with BPD also experience "markedly and persistent unstable self-image or sense of self, recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior, chronic feelings of emptiness, impulsivity, affective instability due to a marked reactivity of mood, and inappropriate, intense anger or difficulty controlling anger (American Psychiatric Association, 2013)." Given that BPD and rejection sensitivity are related, but different constructs, future studies should continue to examine the differences between rejection sensitivity and BPD, and how these constructs influence responses to social rejection.

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APPENDIX A

TABLES OF RESULTS

Table 1

Participant Demographic Characteristics

Demographic Characteristics		*n*	*%*
Sex			
	Male	34	23.1
	Female	113	76.9
Race			
	Caucasian	76	51.8
	African-American	35	23.8
	Multiracial	15	10.2
	Asian/Pacific Islander	11	7.4
	Latino/a	8	5.4
	Native American/Native Alaskan	2	1.4

Table 2

Descriptive Statistics for Study Variables

Variable	M	SD	Range	Cronbach's α
Personality Assessment Inventory-Borderline Features	28.62	11.36	0 – 61	.881
Rejection Sensitivity Questionnaire	9.37	3.28	1.00-20.72	.820
PANAS Negative Before	16.59	6.41	10.00-42.00	.858
PANAS Negative After	15.40	6.45	10.00-42.00	.887
PANAS Negative Difference	-1.19	4.69	-18.00-17.00	.725
Perception of Rejection	4.67	3.16	1.00-9.00	
POMS T-A Before	9.19	6.73	0.00-31.00	.867
POMS A-H Before	5.07	6.01	0.00-28.00	.880
POMS D-D Before	9.40	9.62	0.00-45.00	.915

POMS T-A After	.9.51	5.41	3.00-32.00	.796
POMS A-H After	5.85	7.13	0.00-35.00	.907
POMS D-D After	8.93	9.59	0.00-47.00	.913
POMS T-A Difference	.32	4.03	-15.00-11.00	.631
POMS A-H Difference	.77	5.22	-18.00-25.00	.775
POMS D-D Difference	-.47	5.5	-20.00-27.00	.633

Table 3

Descriptive Statistics Using t-test for Equality of Means

	Mild		Severe		
	M	SD	M	SD	*t*-test
Gender	1.60	.49	1.79	.41	2.009*
Ethnicity	4.33	1.94	4.54	1.95	.529
RSQ	8.40	2.82	9.84	3.47	2.274*
PAI	27.03	10.34	28.83	11.90	.801

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001

Table 4

Descriptive Statistics Using t-test for Equality of Means

	Acceptance		Severe		
	M	SD	M	SD	*t*-test
Gender	1.91	.27	1.79	.41	-1.744
Ethnicity	4.10	1.93	4.54	1.95	1.099
RSQ	9.94	3.35	9.84	3.47	-.149
PAI	30.10	11.85	28.83	11.90	-.524

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001

Table 5

Descriptive Statistics Using t-test for Equality of Means

	Mild		Acceptance		
	M	SD	M	SD	*t*-test
Gender	1.60	.49	1.91	.27	-3.802**
Ethnicity	4.33	1.94	4.10	1.93	.587
RSQ	8.40	2.82	9.94	3.37	-2.478*
PAI	27.03	10.34	30.10	11.85	-1.373

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001

Table 6

Descriptive Statistics Using t-test for Equality of Means

	Acceptance		Rejection		
	M	SD	M	SD	*t*-test
Gender	1.91	.27	1.69	.46	-3.034**
Ethnicity	4.10	1.93	4.43	1.94	.966
RSQ	9.94	3.35	9.10	3.21	-1.472
PAI	30.10	11.85	27.90	11.11	-1.099

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001

Table 7

Pearson Correlations

	RSQ	PAI	PNegD	PNegA	PNegB	TAD	AHD	DDD	TAB	AHB	DDB	TAA	AHA	DDA	P
RSQ	--	.21**	.00	.20*	.20*	-.01	.02	.05	.14	.14	.16*	.16*	.13*	.20*	-.02
PAI		--	.11	.58***	.50***	-.21**	.08	-.06	.54***	.50***	.63***	.51***	.49***	.60***	-.02
PNegD			--	.37***	-.35***	.41***	.57***	.53***	-.11	.07	.01	.17*	.48***	.32***	.28***
PNegA				--	.74***	-.08	.17*	.15	.71***	.71***	.78***	.82***	.73***	.87***	.13
PNegB					--	-.39***	-.25**	-.24**	.79***	.67***	.78***	.70***	.38***	.64***	-.07
TAD						--	.36***	.59***	-.59***	-.11	-.34***	.00	.17*	-00	.15
AHD							--	.58***	-.16*	-.20*	-.14	.07	.56***	.19*	.43***
DDD								--	-.29***	.02	-.29***	.08	.44***	.28**	.25**
TAB									--	.59***	.77***	.80***	.37***	.61***	-.02
AHB										--	.73***	.65***	.69***	.74***	-.05
DDB											--	.71***	.51***	.83***	.00
TAA												--	.60***	.76***	.08
AHA													--	.77***	.27**
DDA														--	.15
Perc															--

RSQ = Rejection Sensitivity Questionnaire PAI = Personality Assessment Inventory-Borderline Features. PNegD = Positive and Negative Affect Schedule negative scale difference score. PNegA = Positive and Negative Affect Schedule negative scale after score. PNegB = Positive and Negative Affect Schedule negative scale before score. TAD = Profile of Mood States Tension-Anxiety scale difference score. AHD = Profile of Mood States Anger-Hostility scale difference score. DDD = Profile of Mood States Depression-Dejection scale difference score. TAB = Profile of Mood States Tension-Anxiety scale before score. AHB = Profile of Mood States Anger-Hostility scale before score. DDB = Profile of Mood States Depression-Dejection scale before score. TAA = Profile of Mood States Tension-Anxiety scale after score. AHA = Profile of Mood States Anger-Hostility scale after score. DDA = Profile of Mood States Depression-Dejection scale after score. P = Perceptions of situation

Table 8

Hypothesis 1.

Multiple Regression Analysis Using BPD Traits and Rejection to Predict Perception of Rejection (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.665		1.985+
Rejection	.813***			
Step 2		.665	.000	.000
PAI-BOR	.055			
Step 3		.666	.001	.002
Rejection x PAI-BOR	.067			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, f^2 = Effect size + = Large effect size

Table 9

Hypothesis 2.

Multiple Regression Analysis Using BPD Traits and Rejection to Predict PANAS Negative (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.026		.026
Rejection	.163*			
Step 2		.043	.017	.017
PAI-BOR	.130			
Step 3		.064	.021	.022
Rejection x PAI-BOR	.242			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, f^2 = Effect size

Table 10

Hypothesis 2.

Multiple Regression Analysis Using BPD Traits and Rejection to Predict POMS Tension-Anxiety (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.014		.014
Rejection	.118			
Step 2		.056	.042	.044
PAI-BOR	-.205*			
Step 3		.078	.022	.023
Rejection x PAI-BOR	.253			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, f^2 = Effect size

Table 11

Hypothesis 2.

Multiple Regression Analysis Using BPD Traits and Rejection to Predict POMS Anger-Hostility (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.168		.201
Rejection	.410***			
Step 2		.183	.015	.018
PAI-BOR	.122			
Step 3		.235	.052	.067
Rejection x PAI-BOR	.383**			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, f^2 = Effect size

Figure 1. Simple slopes analysis conducted to determine the effect of BPD traits, the moderator, on the nature of the relation between rejection and difference scores on the POMS Anger-Hostility scale.

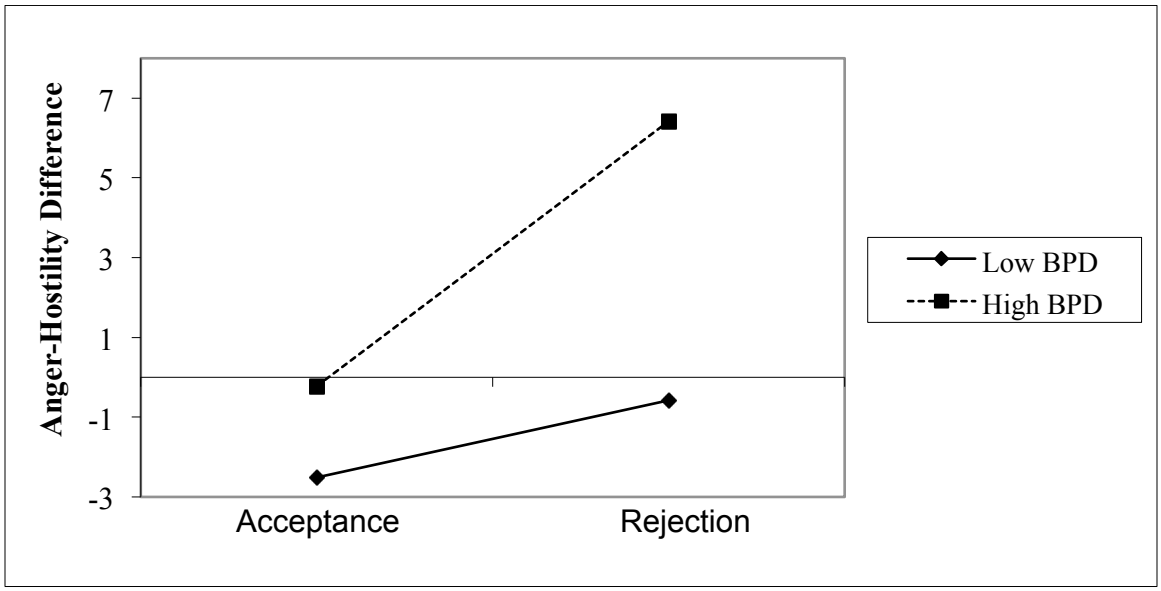


Table 12

Hypothesis 2.

Multiple Regression Analysis Using BPD Traits and Rejection to Predict POMS Depression-Dejection (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.063		.067
Rejection	.250**			
Step 2		.064	.001	.001
PAI-BOR	-.040			
Step 3		.128	.064	.073
Rejection x PAI-BOR	.425**			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, f^2 = Effect size

Figure 2. Simple slopes analysis conducted to determine the effect of BPD traits, the moderator, on the nature of the relation between rejection and difference scores on the POMS Depression-Dejection scale.

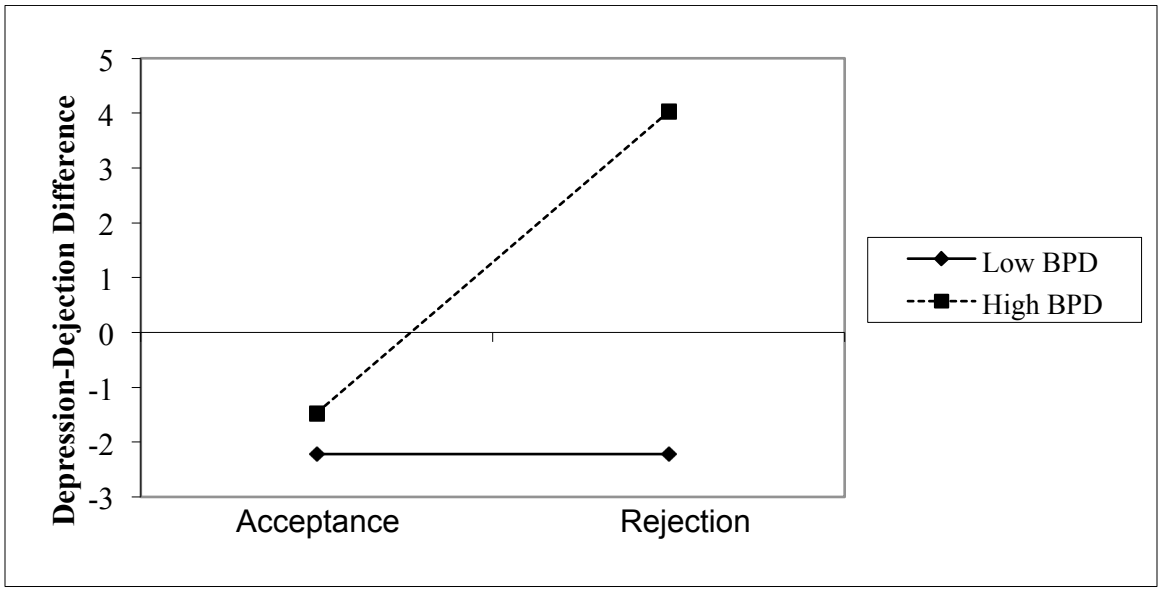


Table 13

Hypothesis 3.

Regression Analysis Using BPD Traits and Rejection to Predict Difference Scores on the PANAS Negative Mood Scale after partialling out the variance explained by rejection sensitivity (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.026		.026
Rejection	.163*			
Step 2		.043	.017	.017
RSQ	.002			
PAI-BOR	.129			
Step 3		.044	.001	.001
Rejection x RSQ	.046			
Step 4		.064	.020	.021
Rejection x PAI-BOR	.243			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, ΔR^2 = Change in variance explained by the model, f^2 = Effect size

Table 14

Hypothesis 3.

Regression Analysis Using BPD Traits and Rejection to Predict Difference Scores on the POMS Tension-Anxiety Scale after partialling out the variance explained by rejection sensitivity (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.014		.014
Rejection	.118			
Step 2		.057	.043	.045
RSQ	.043			
PAI-BOR	-.214*			
Step 3		.059	.002	.002
Rejection x RSQ	-.070			
Step 4		.086	.027	.029
Rejection x PAI-BOR	.281*			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, ΔR^2 = Change in variance explained by the model, f^2 = Effect size

Figure 3. Simple slopes analysis conducted to determine the effect of BPD traits, the moderator, on the nature of the relation between rejection and difference scores on the POMS Tension-Anxiety scale after partialling out the variance explained by rejection sensitivity.

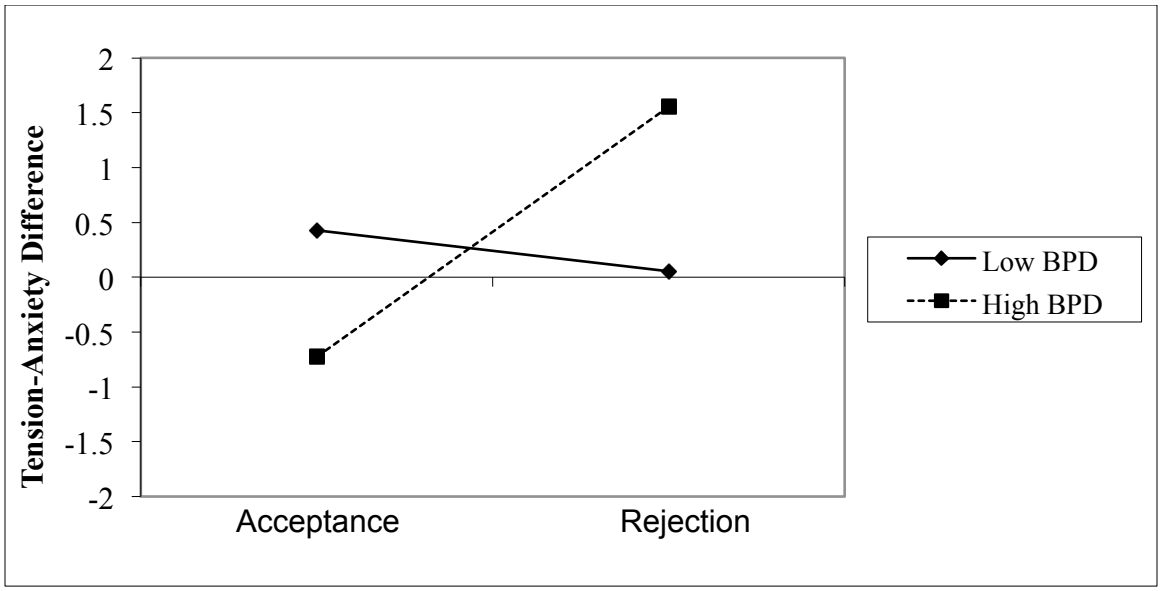


Table 15

Hypothesis 3.

Regression Analysis Using BPD Traits and Rejection to Predict Difference Scores on the POMS Anger-Hostility Scale after partialling out the variance explained by rejection sensitivity (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.168		.201
Rejection	.410***			
Step 2		.185	.017	.020
RSQ	.050			
PAI-BOR	.112			
Step 3		.212	.027	.034
Rejection x RSQ	.280*			
Step 4		.251	.039	.052
Rejection x PAI-BOR	.341**			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, ΔR^2 = Change in variance explained by the model, f^2 = Effect size

Figure 4. Simple slopes analysis conducted to determine the effect of rejection sensitivity, the moderator, on the nature of the relation between rejection and difference scores on the POMS Anger-Hostility scale.

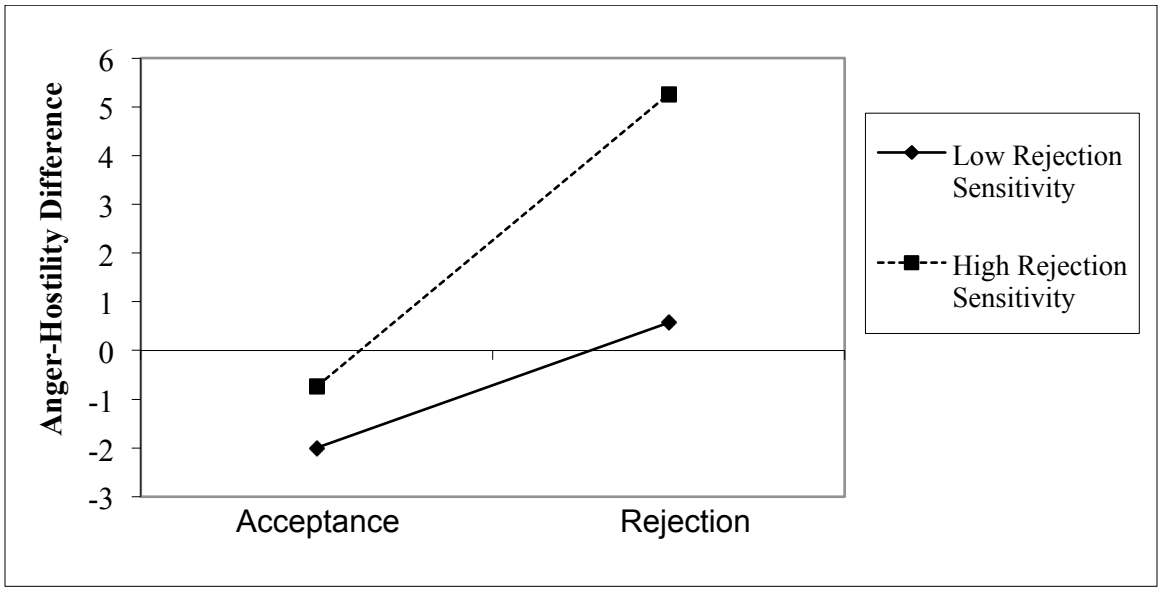


Figure 5. Simple slopes analysis conducted to determine the effect of BPD traits, the moderator, on the nature of the relation between rejection and difference scores on the POMS Anger-Hostility scale after partialling out the variance explained by rejection sensitivity.

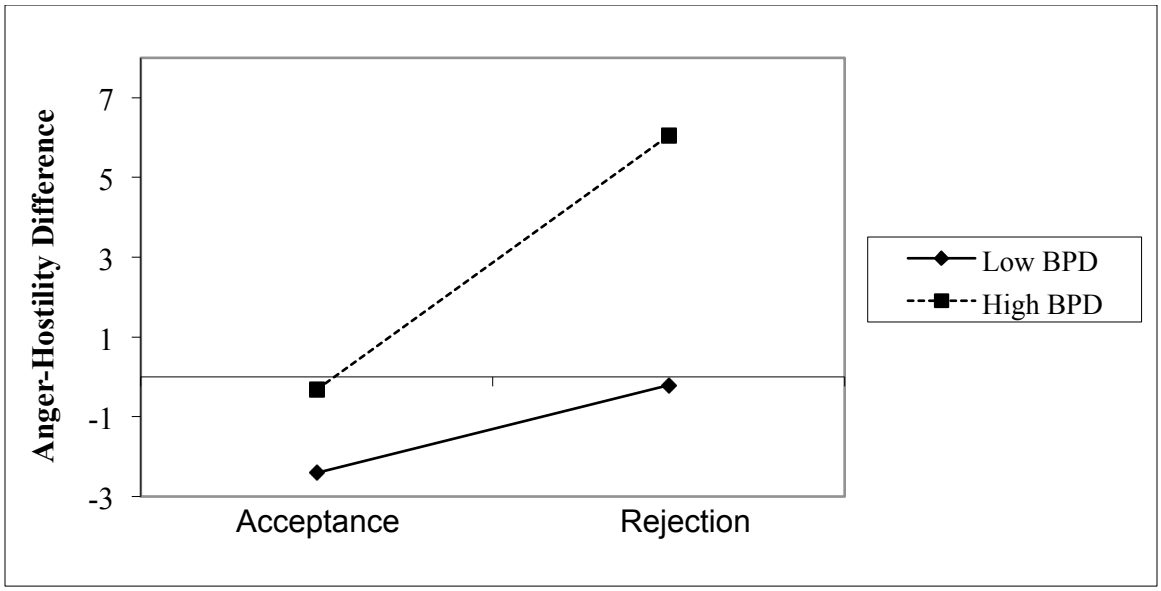


Table 16

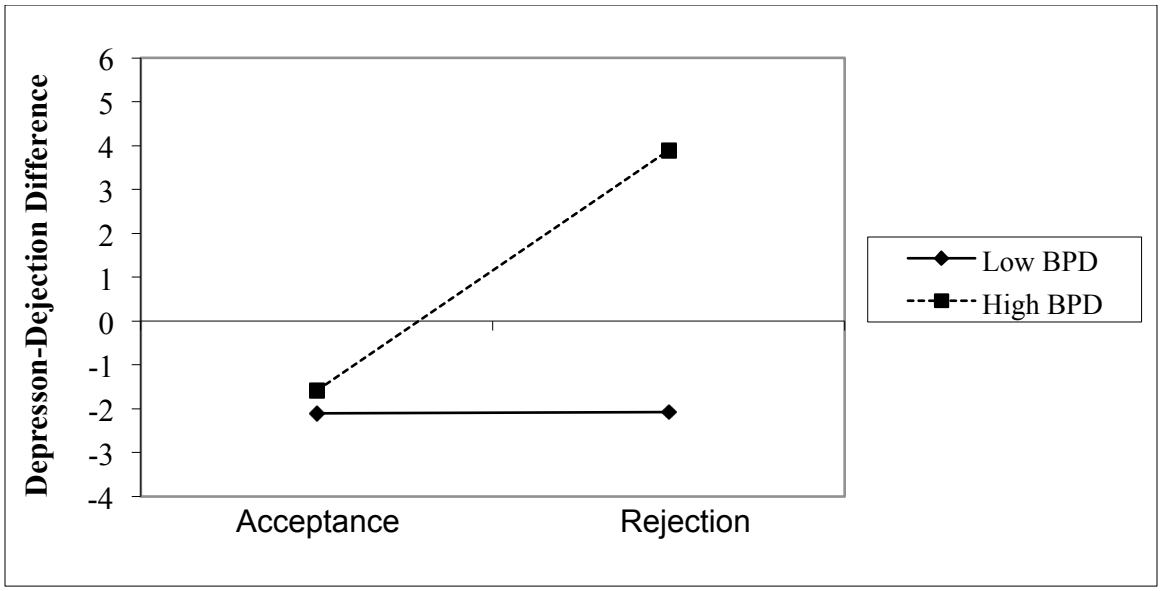
Hypothesis 3.

Regression Analysis Using BPD Traits and Rejection to Predict Difference Scores on the POMS Depression-Dejection Scale after partialling out the variance explained by rejection sensitivity (n = 147)

Predictor Variable	ß	R^2	ΔR^2	f^2
Step 1		.063		.067
Rejection	.250*			
Step 2		.074	.011	.011
RSQ	.100			
PAI-BOR	-.069			
Step 3		.078	.004	.004
Rejection x RSQ	.115			
Step 4		.138	.060	.069
Rejection x PAI-BOR	.422*			

Note. * indicates significance at an alpha level of .05, ** indicates significance at an alpha level of .01, *** indicates significance at an alpha level of .001, ß = standardized beta coefficient, R^2 = Variance explained by the model, ΔR^2 = Change in variance explained by the model, f^2 = Effect size

Figure 6. Simple slopes analysis conducted to determine the effect of BPD traits, the moderator, on the nature of the relation between rejection and difference scores on the POMS Depression-Dejection scale after partialling out the variance explained by rejection sensitivity.



APPENDIX B

CONSENT FORM SIGNED BY STUDY PARTICIPANTS

(Approved by Institutional Review Board of the university)

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT

(LONG FORM)

Project Title: Personality and Memory of Social Experiences

Project Directors: Stephanie Skinner M.A., & Rosemery Nelson-Gray, Ph.D.

DESCRIPTION AND EXPLANATION OF PURPOSE AND PROCEDURES:

This is a research project. The purpose of this study is to examine the relationship between personality and memory of previous social experiences. During this study, participants will write about a previous social experience and will complete questionnaires on-line concerning their views of themselves, their mood, and their perception of previous social experiences. All participants must be fluent in English and at least 18 years old. This study should take approximately 60 minutes for you to complete. You will receive a copy of this consent form that can be kept for your records.

Why are you asking me?

We are asking you because you are a student taking an introductory psychology class at UNCG, who is fluent in English, and are at least 18 years old.

What will you ask me to do if I agree to be in the study?

We will ask you to write about a previous social experience and complete questionnaires

on-line concerning your views of yourself, your mood, and your perception of previous social experiences. The questions may take you up to 60 minutes to answer.

What are the dangers to me?

Completing the questionnaires and writing about a previous social experience for this study entails only minimal risk, as some of the items ask participant about their views of themselves that may be a sensitive subject for some people. Some participants may also feel mildly uncomfortable writing about a previous social experience. Any discomfort encountered, however, is anticipated to be mild (that is, no greater than would be experienced in daily life). If you feel uncomfortable answering any of the questions, you may skip them without penalty. If you experience any distress due to your participation in this study, a list of mental health referrals will be available to you upon request.

If you have any concerns about your rights or how you are being treated please contact Eric Allen in the Office of Research and Compliance at UNCG at (336) 256-1482. Questions, concerns or complaints about this project or benefits or risks associated with being in this study can be answered by Dr. Rosemery Nelson-Gray who may be contacted at r_nelson@uncg.edu.

Are there any benefits to me for taking part in this research study?

There are no direct benefits to you.

Are there any benefits to society as a result of me taking part in this research?

Your participation may help us develop and understanding of how personality variables and memories of social experiences influence mood and perception of the event.

Will I get paid for being in the study? Will it cost me anything?

No, you will not receive any money for participating in this study, nor does it cost you anything. You will, however, receive two credits toward your Experimetrix requirements.

How will you keep my information confidential?

All information obtained in this study is strictly confidential unless disclosure is required by law. The researcher has a legal obligation to break this confidentiality if a participant threatens to kill him/herself or someone else.

To protect your confidentiality, all participants are assigned a code number, and that code number will be used in all the information gathered during the study. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing.

Electronic data files will be stored in a password-protected file on a password-protected computer on the UNCG campus. No personally identifiable information will be stored in online data files. Consent forms will be kept separately in locked file cabinets within locked rooms that only members of the research team have access to. The experimenter will use the sign-in sheet to assign your credits.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, you will receive one credit for each 30 minutes of participation that you

have completed. If you choose to withdraw, you may request that any of your data, which has been collected, be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By continuing with the online survey, you are agreeing that you have read this consent form and you fully understand the contents of this document and are openly willing to consent to take part in this study. All of your questions concerning this study have been answered by the research team, supervised by Dr. Nelson-Gray. You are also verifying that you are 18 years of age or older and are agreeing to participate in this research study. You can print a copy of this consent form for your own records. Or you may request a hard copy of this consent form, which has the stamped approval of the IRB Office.

APPENDIX C

MENTAL HEALTH REFERRALS GIVEN TO STUDY PARTICIPANTS

(Approved by Institutional Review Board of the university)

The Counseling & Testing Center

Overview:

The Counseling & Testing Center (CTC) provides a wide range of counseling and psychological services to currently enrolled UNCG students. The services may include: short term individual counseling, group therapy, crisis intervention, psychiatric services, consultation, and outreach activities. Our goal is to support and challenge students' development in ways that enable them to take advantage of the personal, professional, and educational opportunities at UNCG. We are accredited by IACS (International Association of Counseling Services).

Our professional staff includes licensed Psychologists, Counselors, and Clinical Social Workers as WELL as Graduate Trainees. We are committed to meeting the needs of people of diverse racial, ethnic and national backgrounds, gender, sexual/affectional orientations, mental and physical abilities, religious/spiritual beliefs, and socioeconomic backgrounds as well as other types of diversity.

If you or someone you know is experiencing a crisis, call (336-334-5874) or come directly to our office during business hours.

If you believe your situation is urgent, please let the CTC front desk staff know you are in need of **"URGENT"** services. You will be seen during our next available Urgent appointment. Or you can come to CTC during Walk-In hours (M-Th 12-5pm, Friday 12-4pm)

If you would like to see a counselor during the **"NEXT AVAILABLE"** appointment, you can schedule an appointment by calling 336-334-5874.